A Portable Wind Sensing Lidar

J D Molitoris , S G Peglow, E I Davis, and N L Thomas (Lawrence Livermore National laboratory, University of California, P.O. Box 808, L-103, Livermore, CA 94550; 510-423-3496; e-mail: molitoris1@llnl.gov)

J F Arens (Space Sciences Laboratory, University of California Berkeley, Berkeley, CA 94720; 510-642-7287)

We have developed a portable wind sensing LIDAR to measure wind velocities up to 500 meters from aperture. The unit utilizes a coherent LIDAR transceiver developed at Lawrence Livermore National Laboratory and is sensitive to wind speeds from 0.01 to 100 m/s. Spatial resolution varies as a function of distance from a few cm at 10 m to 50 m at 500 m away. The unit is aperture eye-safe.

As this LIDAR has very high spatial resolution within the first 300 meters and can determine wind velocity in real-time it is ideally suited for small- and large-eddy flow (turbulence) measurements in the lower atmosphere, identification of shear, and the measurement of complex flow about structures. The technique can also be modified to measure wind velocities in excess of 100 m/s for appropriate applications.

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3. a) J Molitoris
   LLNL
   University of California
   P.O. Box 808, L-103
   Livermore, CA 94550
   b) tel: 510-423-3496
   c) fax: 510-423-6785
   d) email: molitoris1@llnl.gov
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